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AN

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DN

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TI

Hormone-sensitive lipase - New roles for an old enzyme.

AU

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CS

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SO

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DT

Article
General Review; (Literature Review)

LA

English

ED

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AB

Although described initially as an intracellular adipocyte-specific triacylglycerol lipase. it is now clear that HSL (hormone-sensitive lipase) is expressed in Multiple tissues and plays a number of roles in lipid metabolism. including that of a neutral cholesteryl ester hydrolase. The major isoform is a single polypeptide with a moleclar mass of approx. 84 kDa and which comprises three major domains: a catalytic domain. a regulatory domain encoding several phosphorylation sites and an N-terminal domain involved in protein-protein and protein-lipid interactions. The activity of HSL is regulated acutely by several mechanisms, including reversible phosphorylation by a number of different protein kinases, translocation to different sites within the cell and interaction with a number of proteins, some of which may serve to direct the inhibitory products of HSL away from the protein. It is also apparent from work with HSL null mice that more than one enzyme species may be classified as a hormone-sensitive lipase. The possible presence of HSL in macrophages remains controversial, and the role of the protein in pancreatic beta-cells has yet to be fully elucidated. Altered expression of HSL in different cell types may be associated with a number of pathological states, including obesity, atherosclerosis and Type II diabetes.

CC

Cytology - General 02502
Cytology - Animal 02506
Biochemistry studies - Sterols and steroids 10067
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Blood - Blood cell studies 15004
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Immunology - General and methods 34502

IT

Major Concepts
Cell Biology; Endocrine System (Chemical Coordination and Homeostasis); Enzymology (Biochemistry and Molecular Biophysics); Metabolism

IT

Parts, Structures, & Systems of Organisms
beta-cell: endocrine system; macrophage: blood and lymphatics, immune system

IT

Chemicals & Biochemicals
cholesterol: metabolism; hormone-sensitive lipase; perilipin; protein kinase [EC 2.7.1.37]

IT

Miscellaneous Descriptors

lipolysis; phosphorylation; protein-lipid interactions; protein-protein interactions

ORGN

Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
mouse (common)
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

RN

57-88-5 (cholesterol)
9001-62-1 (hormone-sensitive lipase)
9026-43-1Q (protein kinase)
80449-02-1Q (protein kinase)
134549-83-0Q (protein kinase)
372092-80-3Q (protein kinase)
9026-43-1 (protein kinase)
9026-43-1Q (EC 2.7.1.37)
80449-02-1Q (EC 2.7.1.37)
134549-83-0Q (EC 2.7.1.37)
372092-80-3Q (EC 2.7.1.37)
9026-43-1 (EC 2.7.1.37)